REMARKS

Claim 11 is amended. Claims 1-4, 6-15, and 18-22 are pending for consideration. In view of the foregoing amendment and the following remarks, Applicant respectfully requests that this application be allowed and forwarded on to issuance.

§ 103 Rejections

Claims 1-4, 6, 7, 11, 12 and 18-22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,594,822 to Schweitz et al. (hereinafter "Schweitz") in view of U.S. Patent No. 5,974,254 to Hsu (hereinafter "Hsu").

Claims 8-10 and 13-15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Schweitz in view of Hsu in view of U.S. Patent No. 6,205,444 to Floratos et al. (hereinafter "Floratos").

Before undertaking a discussion of the substance of the Office's rejections, the following discussion of the §103 Standard, as well as the cited references, is provided.

The § 103 Standard

To establish a prima facie case of obviousness, three basic criteria must be met. ***First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.*** *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Second, there must be a reasonable expectation

of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Finally, ***the prior art reference (or references when combined) must teach or suggest all the claim limitations.*** *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1439 (Fed. Cir. 1991).

Hence, when patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness. See, e.g., *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001) ("the central question is whether there is reason to combine [the] references," a question of fact drawing on the Graham factors). The mere fact that references *can* be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or ***the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.***" *Ex parte Clapp*, 227 USPQ 972, 973 (Bd.Pat. App. & Inter. 1985) (emphasis added).

Chapter 2100 of the MPEP provides further instruction as follows: "[w]ith regard to rejections under 35 U.S.C. 103, the examiner must provide evidence

which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not." *See* MPEP 2142.

Furthermore, "[t]he factual inquiry whether to combine references must be thorough and searching." *Id.* It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions, and cannot be dispensed with. See, e.g., *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1124-25, 56 USPQ2d 1456, 1459 (Fed. Cir. 2000) ("a showing of a suggestion, teaching, or motivation to combine the prior art references is an 'essential component of an obviousness holding'") (quoting *C.R. Bard, Inc., v. M3 Systems, Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998)); *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) ("Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references."); *In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998) (there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant); *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) ("teachings of references can be combined *only* if there is some suggestion or incentive to do so.") (emphasis in original) (quoting *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984)); *In re Fritch*, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992) (***"It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious. [O]ne cannot***

use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.") (quoting *In Re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988)) (emphasis added).

The need for specificity pervades this authority. See, e.g., *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) ("particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed").

It is finally worth noting that "If [the] proposed modification would render the prior art invention being modified ***unsatisfactory for its intended purpose***, then there is no suggestion or motivation to make the proposed modification." *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). *See* MPEP 2143 (emphasis added). Furthermore, "If the proposed modification or combination of the prior art would ***change the principle of operation*** of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)." *Id.* (emphasis added).

The Schweitz Reference

Schweitz discloses a method and apparatus for creating a software patch by comparing object files. According to the Office, Schweitz does not disclose a "limitation wherein the comparing is based upon content of blocks being compared and augmented local neighborhoods of blocks surrounding blocks being compared, wherein a local neighborhood of a particular block consists of blocks neighboring that block in a CFG representation, but less than all the blocks in that

CFG representation, and an augmented local neighborhood of that particular block consists [of] that block's local neighborhood plus a random sampling of blocks from a substantially larger neighborhood of blocks surrounding the block, an augmented local neighborhood in a CFG representation consisting of less than all the blocks in that CFG representation." (Office Action dated 06/29/05, p. 5). The Office also aptly states that Schweitz does not disclose "computing a procedure-match-criterion", nor does it disclose "computing a neighborhood of each block . . . by performing a breadth first traversal". (Office Action dated 06/29/05, p. 9, 17). Applicant agrees that Schweitz does not disclose or suggest any such limitations.

The Hsu Reference

Hsu discloses a method for detecting differences between two graphical programs and displaying these differences to a user of the program. The graphical programs include objects arranged as a user interface panel, including controls and indicators, and a block diagram, including graphical code function blocks connected together as a data flow program. The blocks are connected by "edges".

Hsu's method includes determining differences between the first graphical program and the second graphical program by matching objects in the graphs. First, objects that exactly match are grouped into lists of "matching subgraphs". Objects match exactly if they are of the same object type, their attributes match, and they have matching edges (that is, the edges lead to same object or block). The remaining objects which do not match exactly are then grouped into lists of "non-exact matching subgraphs".

The lists of non-exact matching subgraphs are then matched by "scoring" the similarity of the first block diagram subgraphs with regards to their second block diagram counterparts. This "scoring" is done with the use of a subgraph match matrix. In the match matrix, the rows correspond to the non-exact matching subgraphs of the first block diagram and the columns correspond to the non-exact matching subgraphs of the second block diagram. The scores of the subgraph match matrix indicate a degree of similarity between a subgraph in the first block diagram and a subgraph in the second block diagram. The highest score in a row or column indicates the highest degree of similarity for those subgraphs, and the match matrix determines that these most similar subgraphs are a "match".

The Floratos Reference

Floratos describes a multiple sequence alignment system and method. Within this alignment method, Floratos discusses the use of a breadth first traversal for a graph with vertices. Floratos teaches such a traversal in order to identify all closed paths in the graph, or in other words to determine the graph's outer boundaries. By using a breadth first traversal for this method, Floratos teaches that one can "systematically explore[] the edges of the graph to discover every vertex that is reachable from the source vertex."

The Claims

Claim 1 recites a method for generating a delta between a first program binary and a second program binary, the method comprising (emphasis added):

- obtaining a first control flow graph (CFG) representation of the first binary and obtaining a second CFG representation of the second binary;
- comparing the first and second CFG representations to identify blocks (nominally matched blocks) that match in the first and second CFG representations, thereby identifying blocks (nominally unmatched blocks) in the second CFG representation that do not match in the first CFG representation, the comparing being based upon content of blocks being compared and augmented local neighborhoods of blocks surrounding blocks being compared, wherein a local neighborhood of a particular block consists of blocks neighboring that block in a CFG representation, but less than all the blocks in that CFG representation, and an augmented local neighborhood of that particular block consists that block's local neighborhood plus ***a random sampling of blocks*** from a substantially larger neighborhood of blocks surrounding that block, an augmented local neighborhood in a CFG representation consisting of less than all the blocks in that CFG representation;
- determining edit-operations that merges the unmatched blocks into the first CFG representation so that first CFG representation is substantially identical to the second CFG representation;
- producing a delta comprising the unmatched blocks and the edit-operations.

In making out a rejection of claim 1, the Office argues that Schweitz discloses all recited features but does not disclose "the limitation wherein the comparing is based upon content of blocks being compared and augmented local neighborhoods of blocks," the augmented local neighborhood consisting of a "random sampling of blocks." The Applicant agrees that Schweitz does not

disclose or suggest any such subject matter. However, the Office then characterizes Hsu as teaching this feature, and the Office declares that it would have been obvious to combine these references. The Office offers the following motivation for such a combination:

> "It would have been obvious to one of ordinary skill in the art at the time the invention was made to supplement the method of Schweitz with the comparison features taught by Hsu, for the purpose of creating a software patch [] to address the differences found between two graphical programs." (Office Action dated 06/29/05, p. 6).

Applicant respectfully but strongly disagrees with the Office's obviousness rejection and reminds the Office that, as noted above, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Here, Schweitz and Hsu contain no such suggestion or motivation. Furthermore, the Office bears the burden of explaining "why the combination of the teachings is proper." MPEP §2142. Here, the Office's only attempt at such an explanation is to state that an artisan would have been motivated to modify Schweitz with the teachings of Hsu in order "to address the differences found between two graphical programs". However, this reasoning is misplaced and fails to explain ***why*** the combination is proper, as both Schweitz and Hsu *already provide for* addressing the differences found between two graphical programs.

For example, Applicant respectfully directs the Office's attention to the abstract of Schweitz, which states a purpose of "***comparing the graphs to determine the changes***". (emphasis added). Similarly, Hsu states in its abstract a

purpose of "***detecting differences between two graphical programs***". (emphasis added).

Thus, it remains unclear why an artisan would have been motivated to combine these references in this way for reasons that are already addressed by both references. Such motivation is misplaced, at best, and certainly does not rise to the level necessary to sustain a showing of motivation, as addressed above. Accordingly, the Office has failed to present a *prima facie* case of obviousness and, for at least this reason, this claim is allowable.

Furthermore, Applicant respectfully disagrees with the Office's interpretation of Hsu. The Office submits that while Schweitz does not suggest an "augmented local neighborhood" that includes a "random sampling of blocks," Hsu does suggest such an element. More specifically, the Office states that:

> "Hsu further discloses subsequently operating on subgraphs of the graph (see, for example, step 150 in FIG. 10 and column 15, lines 46-50), which comprise groups of exact matching objects that are connected together in the graph (see, for example, step 140 in FIG. 10 and column 14, lines 46-50 and 59-64), and groups of non-exact matching objects (see, for example, step 142 in FIG. 10 and column 15, lines 9-13). Thus, the subgraphs include the local neighborhoods of an object plus other surrounding objects, including exact matching objects and non-exact matching objects. ***Therefore, the subgraphs of Hsu are considered augmented local neighborhoods.***
>
> (Office Action dated 06/29/05, p. 6) (emphasis added).

Applicant respectfully but strongly disagrees. As discussed above, Hsu discloses a method for detecting differences between two graphical programs. Hsu begins by attempting to find exact matching objects between two graphical programs, and all other objects are considered non-matching. Hsu next creates a

list of subgraphs of exact matching objects and a list of subgraphs of non-exact matching objects. The latter subgraphs are then placed in a matching matrix for determining similarity between the non-matching objects in the two graphical programs. As Hsu states:

> In an exact match the two objects: 1) have the same object type and their attributes compare exactly according to the compare engine; and, 2) have connectivity matches. . . . In a connectivity match all connections, or edges, of the objects match. That is, all objects to which the prospective exact matching objects are connected are also matching objects. The exact matching subgraphs comprise exact matching objects which are connected together.
>
> ...
>
> Next, [the program] ***groups the remaining objects, i.e., the objects which were not grouped into the exact matching subgraphs, into a list of non-exact matching subgraphs,*** one for each block diagram, using the match matrix and list of exact matching subgraphs, in step 142. These two lists of non-exact matching subgraphs are then matched together in a match matrix
>
> (Hsu, col. 14, lines 50-54, col. 15, lines 9-15).

Applicant respectfully submits that there is nothing "random" about the Hsu method. To the contrary, Hsu discloses a method of comparison that is extremely structured, as shown above. Hsu discloses a precise formula as to what type of object is an "exact match" (i.e. the same object type with a connectivity match). Hsu also discloses a precise formula as to what type of object is a "non-exact match" (i.e. "*the remaining objects*"). After these groups are separated into two lists of subgraphs, the subgraphs in the non-exact matching list are then compared for similarity using the match matrix. Therefore, the Hsu method

cannot fairly be said to compare a "random sampling of blocks." Hsu is more aptly characterized as comparing blocks with the use of a *highly specific pattern*, which is quite inapposite to the common portrayal of the term "random".

Furthermore, the fact that Hsu has nothing whatsoever to do with randomness is even more apparent when one considers that there is not a single occurrence of the term "random" in nearly twenty-eight columns of text of the Hsu patent. If a reference did indeed teach a comparative method that utilizes a "random assembly of blocks," one would certainly expect the term "random" to appear in the document. Applicant submits, however, there is a cohesive and understandable reason as to why the term is absent, the reason being that Hsu does not teach or suggest such a limitation. Accordingly, Schweitz and Hsu do not disclose or suggest all of the elements of Applicant's claim 1. For at least this reason, this claim is allowable.

Claims 2-4, 6 and 7 depend from claim 1 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 1, are neither disclosed nor suggested in the references of record, either singly or in combination with one another.

Claim 8 recites a method for matching blocks between a first control flow graph (CFG) representation of a portion of a first program and a second CFG representation of a portion of a second program, the method comprising (emphasis added):

- matching blocks between the first and second CFG representations based upon the content of the blocks;

- detecting outliers, wherein outliers are blocks in the first CFG representation that do not match any block in the second CFG representation during the matching step;
- computing a neighborhood of each block in the first and second CFG representations ***by performing a breadth first traversal***;
- removing the outliers from each neighborhood.

In making out a rejection of claim 8, the Office argues that Schweitz discloses all of the recited elements except for "computing a neighborhood of each block in the first and second CFG representations by performing a breadth first traversal" and "removing the outliers from each neighborhood." The Office further states that Hsu teaches the "neighborhood features", and that Floratos discloses that "breadth first searches are well known" in the art. The Office states that it would therefore have been obvious for one of ordinary skill in the art at the time the invention was made to combine these three references. Once again, Applicant respectfully points out that the motivation to combine offered by the Office is far from adequate.

In the above discussion relating to claim 1, the Applicant respectfully submitted that the Office failed to show a proper motivation to combine the Schweitz and Hsu references. Once more, the Office has stated that in regards to claim 8, "[i]t would have been obvious . . . to supplement the method of Schweitz with the neighborhood features taught by Hsu . . . to address the differences found between two graphical programs." (Office Action dated 06/28/05, p. 17). Applicant again respectfully submits that such a statement is inherently deficient, as both references already teach such a purpose.

Similarly, Applicant submits that the Office has failed to provide, with any meaningful particularity, a motivation to combine Hsu and Floratos. Instead, the Office merely states that:

> It would have been obvious to one of ordinary skill in the art at the time the invention was made that the traversal of Hsu be performed as a breadth first traversal, as is well known in the art and as taught by Floratos, for the purpose of systematically exploring the edges of the graph to compute the neighborhood of each block.
>
> (Office Action dated 06/29/05, p. 17-18).

Applicant again notes that there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Here, Hsu and Floratos contain no such suggestion or motivation. Furthermore, the Office bears the burden of explaining "why the combination of the teachings is proper." MPEP §2142. Here, the Office's only attempt at such an explanation is to state that an artisan would have been motivated to modify Hsu with the teachings of Floratos "for the purpose of systematically exploring the edges of the graph to compute the neighborhood of each block". However, this reasoning is misplaced and fails to explain ***why*** the combination is proper. Hsu does not disclose a need to "systematically explor[e] the edges of the graph", nor does Floratos disclose why doing so would be proper in Hsu. Such motivation is misplaced, at best, and certainly does not rise to the level necessary to sustain a proper showing of motivation. Therefore, a *prima facie* case of obviousness has not been shown, and claim 8 is allowable for at least this reason.

Furthermore, Applicant also respectfully reminds the Examiner that "[i]f [the] proposed modification would render the prior art invention being modified ***unsatisfactory for its intended purpose***, then there is no suggestion or motivation to make the proposed modification." *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). *See* MPEP 2143 (emphasis added). Modifying Hsu as suggested by the Examiner not only lacks motivation, but would also render Hsu unsatisfactory for its intended purpose.

As described above, Hsu attempts to find exactly matching objects and then groups these objects into lists of matching subgraphs. Objects match exactly if they are of the same object type, their attributes match, and they have matching edges. The remaining objects which do not match exactly are then grouped into lists of non-exact matching subgraphs. The lists of non-exact matching subgraphs are matched by determining similarity of the first block diagram subgraphs in regards to their second block diagram counterparts. Therefore, Hsu teaches grouping the objects into two types of lists, the first containing objects that are exactly matched, and the second containing all of the remaining objects.

If Hsu were modified so as to use the breadth first traversal taught by Floratos, however, the Hsu method would be rendered highly unsatisfactory for its intended purpose, as the two-group feature of Hsu would consolidate into a single group of non-exact matching objects. As discussed above and stated by the Examiner, Floratos teaches such a traversal in order to "systematically explore[] the edges of the graph to discover every vertex that is reachable from the source vertex." If Hsu utilized use such a traversal, there would be no matching objects and the entire graph would fall into the list containing non-exact matching objects. This is because such a breadth first traversal would extend out to all edges of the

graph, and the resulting "object" *would merely be the graph itself.* When compared to the second graph, *it would only match if the second graph were identical to the first.* Such a scenario allows for one to understand exactly why the Hsu method teaches examining a block and *only* its immediate neighbors: it greatly increases the chance that matching objects will be found. Simply put, Hsu teaches away from the breadth first traversal of Floratos, as the traversal taught in Floratos would render Hsu's two groups of subgraphs valueless. Accordingly, for at least this additional reason, this claim is allowable.

Claims 9 and 10 depend from claim 8 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 8, are neither disclosed nor suggested in the references of record, either singly or in combination with one another.

Claim 11 recites a method for matching procedures between a first control flow graph (CFG) representation of a portion of a first program and a second CFG representation of a portion of a second program, wherein a procedure comprises multiple blocks in a CFG representation, the method comprising [added language appears in bold italics]:

- computing a procedure-match-criterion for each procedure in the second CFG representation, where the procedure-match-criterion for a procedure in the second CFG representation represents the number of matching blocks between that procedure and a specified procedure in the first CFG representation;
- matching procedures in the second CFG representation with the specified procedure in the first CFG representation based upon the procedure-match-criteria for the procedures in the second CFG representation;

- ***attempting to match blocks in the procedure in the second CFG representation with blocks in the specified procedure in the first CFG representation.***

In making out a rejection of claim 11, the Office argues that Schweitz discloses computing a procedure-match-criterion and Hsu discloses matching these procedures. Furthermore, the Office insists that it would be obvious to combine these references to achieve Applicant's claim 11. Initially, Applicant submits again that the Office has failed to establish a *prima facie* case of obviousness. Once again, the only motivation shown by the Office consists of "address[ing] the differences found between two graphical programs." As discussed above with respect to claim 1, it is difficult to see why the skilled artisan would be motivated to combine references in order to do something that they both already accomplish individually. This lack of motivation equates to a failed showing of a *prima facie* case of obviousness. Claim 11 is therefore allowable for at least this reason.

Furthermore, Applicant respectfully submits that neither Schweitz nor Hsu teach or suggest claim 11 as amended. Specifically, neither reference teaches or suggests "attempting to match blocks in the procedure in the second CFG representation with blocks in the specified procedure in the first CFG representation" as recited in claim 11. Applicant agrees with the Office in its statement that Schweitz does not disclose a "procedure-match-criterion". (Office Action dated 06/29/05, p. 9). Similarly, Hsu does not teach the added element. To the contrary, Hsu teaches comparing non-exact matching objects by "scoring" the similarity of first and second graph objects. The objects with the highest score are the most similar, and such objects are considered a "match". (Hsu, col. 15, lines 9-

26). Because the purpose of Hsu is to find the differences between two graphical programs and display these differences to the user, finding such a match completes the analysis of those objects. Therefore, Hsu does not teach the further action of "*attempting to match blocks in the procedure*" as recited in Applicant's claim 13 (emphasis added).

Claim 12 depends from claim 11 and is allowable as depending from an allowable base claim. Claim 12 is also allowable for its own recited features which, in combination with those recited in claim 11, are neither disclosed nor suggested in the references of record, either singly or in combination with one another.

Claim 13 recites a method for matching of blocks in a procedure of a first control flow graph (CFG) representation of a portion of a first program between an ostensibly matching procedure of a second CFG representation of a portion of a second program, the method comprising (emphasis added):

- matching blocks between the first and second CFG representations based upon the content of the blocks;
- computing successively smaller neighborhoods of each block in the first and second CFG representations ***via breadth first traversals***;
- for each neighborhood computed in the computing step, forming a "d-label" for each block in a neighborhood based upon labels of the blocks within the neighborhood;
- attempting to match blocks between first and second CFG representations by comparing the d-labels of the blocks.

In making out the rejection of this claim, the Office uses the same argument and reasoning as it did in making out the rejection of claim 8. As noted and for all of the reasons above, the Office has failed to establish a *prima facie* case of

obviousness. As such, this claim is allowable. Applicant also submits that, as explained above with respect to claim 8, Hsu teaches away from a breadth first traversal, and that modifying Hsu so as to include such a traversal would render Hsu unsatisfactory for its intended purpose. Claim 13 is therefore also allowable for at least this additional reason.

Claims 14 and 15 depend from claim 13 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 13, are neither disclosed nor suggested in the references of record, either singly or in combination with one another.

Claim 18 recites a patch data structure generated in accordance with the following acts (emphasis added):

- providing a server computer in a communications with a communications network;
- receiving input from a client computer by way of the communications network, the input providing a parameter indicative of a request for upgrading a copy of a first program binary to a match a second program binary;
- retrieving a delta between a first program binary and the second program binary, wherein computing such delta comprises the steps of:
  - obtaining a first control flow graph (CFG) representation of the first binary and obtaining a second CFG representation of the second binary;
  - comparing the first and second CFG representations to identify blocks (nominally matched blocks) that match in the first and second CFG representations, thereby identifying blocks (nominally unmatched blocks) in the second CFG representation that do not match in the first CFG representation, the comparing being based upon content of blocks being compared and augmented local neighborhoods of blocks surrounding blocks being compared, wherein a local neighborhood of a

particular block consists of blocks neighboring that block in a CFG representation, but less than all the blocks in that CFG representation, and an augmented local neighborhood of that particular block consists that block's local neighborhood plus ***a random sampling of blocks*** from a substantially larger neighborhood of blocks surrounding that block, an augmented local neighborhood in a CFG representation consisting of less than all the blocks in that CFG representation;

- determining edit-operations that merges the unmatched blocks into the first CFG representation so that first CFG representation is substantially identical to the second CFG representation;
- producing a delta comprising the unmatched blocks and the edit-operations;

- generating the patch data structure as a function of the delta.

In making out the rejection of this claim, the Office uses the same argument and reasoning as it did in making out the rejection of claim 1. As noted and for all of the reasons above, the Office has failed to establish a *prima facie* case of obviousness. As such, this claim is allowable. Furthermore, as shown above in response to the rejection of claim 1, Hsu does not disclose a "random sampling of blocks." Therefore, the claim is also allowable for at least this additional reason.

Claims 19 and 20 depend from claim 18 and are allowable as depending from an allowable base claim. These claims are also allowable for their own recited features which, in combination with those recited in claim 18, are neither disclosed nor suggested in the references of record, either singly or in combination with one another.

Claim 21 recites a delta-generator system comprising (emphasis added):

- a comparator that is configured to compare a first control flow graph (CFG) representation of a first program binary and

a second CFG representation of the second program binary for identifying blocks (nominally matched blocks) that match in the first and second CFG representations, thereby identifying blocks (nominally unmatched blocks) in the second CFG representation that do not match in the first CFG representation, the comparing being based upon content of blocks being compared and augmented local neighborhoods of blocks surrounding blocks being compared, wherein a local neighborhood of a particular block consists of blocks neighboring that block in a CFG representation, but less than all the blocks in that CFG representation, and an augmented local neighborhood of that particular block consists that block's local neighborhood plus ***a random sampling of blocks*** from a substantially larger neighborhood of blocks surrounding that block, an augmented local neighborhood in a CFG representation consisting of less than all the blocks in that CFG representation;

- an edit-op determiner configured to determine the edit-operations that merges the unmatched blocks into the first CFG representation so that first CFG representation is substantially identical to the second CFG representation;
- an output sub-system that is configured to produce a delta comprising the unmatched blocks and the edit-operations.

In making out the rejection of this claim, the Office uses the same argument and reasoning as it did in making out the rejection of claim 1. As noted and for all of the reasons above, the Office has failed to establish a *prima facie* case of obviousness. As such, this claim is allowable. Furthermore, as shown above in response to the rejection of claim 1, Hsu does not disclose a "random sampling of blocks." Therefore, the claim is also allowable for at least this additional reason.

Claim 22 depends from claim 21 and is allowable as depending from an allowable base claim. Claim 22 is also allowable for its own recited features which, in combination with those recited in claim 21, are neither disclosed nor

suggested in the references of record, either singly or in combination with one another.

Conclusion

All of the claims are in condition for allowance. Accordingly, Applicant requests a Notice of Allowability be issued forthwith. If the Office's next anticipated action is to be anything other than issuance of a Notice of Allowability, Applicant respectfully requests a telephone call for the purpose of scheduling an interview.

In the event the Office maintains its present rejections, Applicant intends to appeal those rejections.

Respectfully submitted,

Dated: 9/29/05

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